

Earth System Science in Pre-service

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The GLOBE Program Thailand - IPST

**Goals: To inspire the next generation
of citizen scientists**

- **Engage students in doing
real science in natural setting**
- **Develop student's thinking skills
through scientific inquiry**



The GLOBE Program Thailand - IPST

Strategy:

- **Integrating ESS student research approach into GLOBE schools**
- **Developing ESS teacher guide and student activities**
- **Using ESS teacher guide and student learning activities to train teachers and students to learn how to do ESS scientific researches in GLOBE schools.**



The GLOBE Program Thailand - IPST

Strategy:

- Using ESS student research approach to encourage students to understand ESS concepts, develop higher order of thinking to inquire, and help solving local and global environmental problems.
- Using ESS student research approach to promote sustainable teacher inquiry professional development through in-service and pre-service education.



Earth System Science Implementation

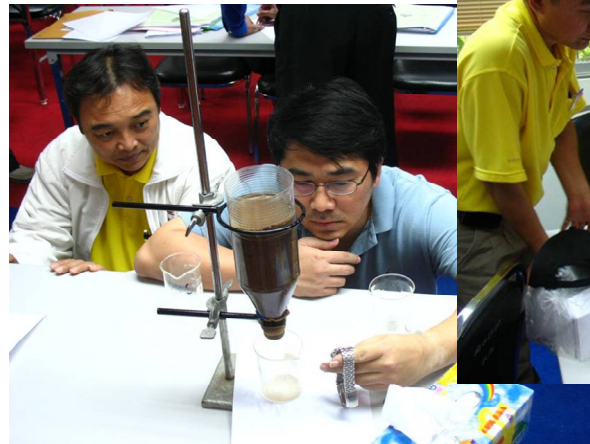
- Integrating ESS principal and approach into school curriculum based on the National Science Education Standard (NSES)
- Linking to pre-service education to produce new generation of teachers



Earth System Science (ESS) in Pre-service

- Starting with 10 universities in 2006
- Conducting the first pre-service education workshop to introduce the philosophical value of ESS pre-service integration in September, 2006.
- Arranging the second pre-service education workshop to analyze the related existing courses and seeking for the possibility of adapting those courses or designing the new courses of ESS in February, 2007.





The pictures from the workshops!



Earth System Science (ESS) in Pre-service

- introducing “the ESS Teacher Guide and Student Learning Activities”, innovated by IPST, to active pre-service universities as the guide line for integrating or designing ESS pre-service courses.
- Working closely with universities in Integrating ESS principal and learning activities into pre-service program



ESS Implementation Status

The universities have integrated ESS concepts and learning activities into pre-service education in 3 models:

- Integrating into pre-service related existing courses
- Establishing a new ESS course
- Arranging short course in summer



Future Implementation Plan I

- Providing necessary financial support for ESS implementation activities of active universities as requested.
- Offering academic supports such as:
 - example of successful model for ESS implementation into pre-service education program e.g. The GLOBE Pre-service Toolkit (July 2005) (Source: GPO)
(http://globethailand.ipst.ac.th/Preservice/pre-service_toolkit.pdf)
 - designing earth system course
(<http://serc.carleton.edu/introgeo/earthsystem/index.html>)



Future Implementation Plan II

- **Joining and follow-up ESS training activities of the active universities.**
- **Designing successful and practical ESS implementation models with active universities**
- **Arranging the third pre-service education workshop for sharing successful implementation models and experience with the new pre-service universities.**





Thank you!

